REMARKS

Status of claims

Upon entry of the amendment, claims 21 and 35-37 are pending, with claims 1-20 and 22-34 being canceled.

The Amendment

Claims 1-20 and 34 have been canceled without disclaimer or prejudice to pursing any cancelled subject matter in a later continuation or divisional filing. Claim 21 has been amended to focus the claim to an assay method for identifying an agent for treating a diabetic individual having impaired glucose-induced insulin secretion and to incorporate the limitation of now cancelled Claim 34. Support for the amendment is found through out the application (e.g. paragraph [0006] on page 2) and claims as filed.

The 35 USC § 103(a) rejection

Pending claims 21 and 35-37 were rejected under 35 USC § 103(a) over Meyers et al. (US 2002/0009779) in view of Liang et al. (J. of Biological Chemistry, 1990 Vol. 265:16863-16866). The rejection is respectfully traversed in view the amendment to Claim 21.

Meyers et al. does not teach the limitation in amended Claim 21 of identifying an agent for treating a diabetic individual having impaired glucose-induced insulin secretion using SEQ ID NO 2.

Meyers et al. teaches (paragraphs **[0001]** to **[0003]**) that there are four separate types of hexokinases and that they have identified a new hexokinase that they refer to as 50365 (in the present application, this polypeptide corresponds to SEQ ID NO. 2 and is also referred to as hexokinase V). Applicants do not dispute the assertion of Meyers et. al. that agents binding to 50365 can be used to treat 50365 mediated disorders. While Meyers et. al. speculates that 50365 inhibition may be used to treat diabetes, there is no teaching to support this speculation. More specifically, Meyers et al. does not provide any showing that 50365 is involved in pathways mediating glucose induced insulin secretion. Insulin is secreted in the islet β cells of the

pancreas, but Meyers et. al. does not disclose that 50365 is found in the pancreas and instead show that 50365 mRNA is up-regulated in other cell types, particularly cancer cells.

Claim 21 has been amended to be directed to a method for identifying an agent for treating a diabetic individual having impaired glucose-induced insulin secretion and is further limited to SEQ ID. NO. 2. Applicants submit that Meyers et al. does show any reasonable expectation of success that screening agents that bind to 50365 will lead to the identification of an agent that will also enhance insulin response to glucose, as Meyers et al. is wholly silent on whether 50365 is even present in the pancreatic cells. Without any teaching that 50365 can be found in pancreatic cells or its role in these cells, there can also be no teaching that aberrant 50365 expression in such cells is related to diabetes.

Liang et al. discloses experiments to study the relationship of hexokinases to glucose induced insulin response in rat pancreatic islet cells. At the time of the disclosure of Liang et al., the hexokinase 50365 had not yet been specifically identified. The experiments of Liang et al. however, led to a singular result that of all the hexokinases (Liang's experiments involved whole cells), it is *only* glucokinase (hexokinase IV) that mediates glucose induced insulin secretion. Therefore Liang et al. teaches away from the method of the present claims of using hexokinase V to identify an agent for affecting glucose induced insulin response. While the Office has stated that Liang et al. was not relied upon to teach use of hexokinases *per se* and was relied upon for teachings of determining the level of glucose-induced insulin secretion in pancreatic islet cells, Applicants submit that all the teachings of Liang et al must be considered, including those that teach away and support a lack of motivation for the combination. Such "teachings away" in the art rebuts a *prima facie* case for obviousness, because it demonstrates that one of ordinary skill would not have expected this combination as claimed to work.

In contrast to the teachings of Myers et al. and Liang et al., Figure 10 of the present application shows the unexpected finding that cells over-expressing hexokinase V disrupts insulin secretion in response to glucose. These experiments and results are neither suggested nor

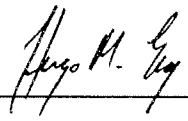
expected based on the teachings of Meyers et al. or Liang et al., either alone or in combination, and provide direct evidence supporting the use of hexokinase V in the present claims.

For the reasons stated, withdrawal of the rejection under 35 USC § 103(a) of Claims 21 and 35-37 is respectfully requested.

Applicants respectfully submit that all pending rejections have been addressed and that the present application is now in condition for allowance. Favorable reconsideration and allowance of the pending claims is respectfully requested. If the Examiner believes a telephone conversation would help advance prosecution of the present application, the Examiner is cordially invited to contact the undersigned at the number below.

Respectfully submitted,

Date 17 April 2008

By 

FOLEY & LARDNER LLP
Customer Number: 38706
Telephone: (650) 251-1126
Facsimile: (650) 856-3710

Hugo M. Eng, Ph.D.
Registration No. 50,840